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Marine Physical Laboratory

Research Platforms FLIP and ORB Support

Kenneth M. Watson and Fred H. Fisher

Final Report to the
Office of Naval Research
for Grant N00014-89-J-1889
for the Period 04-01-89 - 06-30-92

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This project provided support for the operation, maintenance, and upgrades of the Research Platforms FLIP and ORB, both of which are operated by the Scripps Institution of Oceanography, University of California, San Diego. These platforms, owned by the U.S. Navy, are used principally in support of ASW research and development projects. Their stability characteristics, instrument deployment capabilities and mooring capabilities make them unique platforms for obtaining ocean environmental data critical to the successful development of advanced ASW systems.

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Abstract

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Research Summary

The Research Platform FLIP was used in many different ways in the period covered by this report, including the deployment of the MPL 3000 meter, 200 element hydrophone array in the multiship VAST experiment under ONT sponsorship in 1989. Several other expeditions were undertaken in this period including:

TABLE 1. Flip Usage During Period 1 April 1989 through 30 June 1992

YEAR	MONTH	DAYS	CONTRACT	INDEX	PROJECT
92	2	5	University of Washingonton PO#100634		N00039-88-C-0051
92	1	21	University of Washington PO#100634		N00039-88-C-0051
91	10	4	N00014-89-J-1889	MPL3232	FLIP/ORB Support
91	10	9	N00014-91-J-1336	MPL4293	ULF/VLF Noise on Basalt & Sediment (NOBS)
91	8	11	N00014-91-J-1336	MPL4293	ULF/VLF Noise on Basalt & Sediment (NOBS)
91	7	9	N00014-88-K-2040	MPL3694	Vertical DIFAR Array
91	2	4	N00014-89-J-1889	MPL3232	FLIP/ORB Support
90	10	1	N00014-89-J-1889	MPL3232	FLIP/ORB Support
90	8	10	N00014-89-C-0142	MPL0276	NOSC Optical Propagation Experiment
90	5	5	N00014-88-K-2040	MPL3694	Vertical DIFAR Array
90	3	22	WHOI PO#3785		SWAPP Program Experiment (Weller)
90	2	13	WHOI PO#3785		SWAPP Program Experiment (Weller)
90	2	2	N00014-89-J-1889	MPL3232	FLIP/ORB Support
89	12	14	NSF OCE 87-11936		Small-Scale Overturns in the Upper Ocean (Pinkel)
89	9	1	N00014-89-C-0142		FLOSS: FLIP Oceanographic Surface Scattering Experiment
89	8	7	WHOI PO#29487		SWAPP Program Experiment (Weller)
89	7	3	WHOI PO#29487		SWAPP Program Experiment (Weller)
89	7	21	N00014-89-C-0142	MPL3227	MPL Digital Acoustic Array

TABLE 1. Flip Usage During Period 1 April 1989 through 30 June 1992

YEAR	MONTH	DAY	CONTRACT	INDEX	PROJECT
89	6	11	N00014-89-C-0142	MPL3227	MPL Digital Acoustic Array
89	5	9	N00014-87-C-0127	MPL3178	MPL Digital Array Design Studies for the DVLA Experiment

Routine shipyard overhauls, as a part of the fatigue management program, were performed in August 1990 and February 1992.

The Research Platform ORB was considered for two major experiments, one involving a tow to station at 14 degrees north latitude and one for an extended listening program involving real time data transmission to the Washington, DC, area as a part of a Nuclear Monitoring Program. When the question was asked about the seaworthiness of ORB for a tow to station and operating at 14 north, MPL decided to ask the opinion of an experienced marine surveyor. ORB had previously operated in 2000 fathom water off San Diego in a very complex experiment, deploying the Advanced Detection Array (ADA) at the sound channel. This was a large 720 element planar acoustic array with a self- contained DIMUS processing system.

The marine surveyor's opinion was that substantial changes in ORB would have to be made in order to make it safe and capable of meeting current regulations. Approximately $400,000 would be required at least in order to bring it into compliance. The only changes made under this funding were those to meet dockside safety considerations

At one point, it appeared that the DARPA program for Nuclear Monitoring might pay for changes to make ORB seaworthy in order to have an economical long term monitoring station near San Diego but the program was cancelled before it even began.

During this period ORB has been used as a dockside platform to test a small Phantom ROV and other minor equipments from the well deck.

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